As a check upon the method, I thought it desirable to apply it to the comparison of pure water and dilute alcohol, choosing for the latter a mixture of 10 parts by volume of strong (not methylated) alcohol with 90 parts water. The results were as follows :—

$$2\lambda \text{ (water)} = 38{\cdot}5, \qquad 2\lambda \text{ (alcohol)} = 46{\cdot}5,$$
$$h \text{ (water)} = 30{\cdot}0, \qquad h \text{ (alcohol)} = 22{\cdot}0\,;$$

but it may be observed that they are not quite comparable with the preceding for various reasons, such as displacements of apparatus and changes of temperature. It is scarcely worth while to attempt an elaborate reduction of these numbers, taking into account the differences of specific gravity in the two cases ; for, as was shown in the former paper, the observed values of λ are complicated by the departure of the vibrations from isochronism, when, as in the present experiments, the deviation from the circular section is moderately great. We have—

$$(46{\cdot}5/38{\cdot}5)^2 = 1{\cdot}46, \qquad 30/22 = 1{\cdot}36\,;$$

and these numbers prove, at any rate, that the method of wave-lengths is fully competent to show a change in tension, provided that the change really occurs at the first moment of the formation of the free surface.

In view of the great extensibility of saponine films it seemed important to make experiments upon this material also. The liquid employed was an infusion of horse chestnuts of specific gravity 1·02, and, doubtless, contained other ingredients as well as saponine. It was capable of giving large bubbles, even when considerably diluted (6 times) with water. Photographs taken on November 23 gave the following results :—

$$2\lambda \text{ (water)} = 39{\cdot}2, \qquad 2\lambda \text{ (saponine)} = 39{\cdot}5,$$
$$h \text{ (water)} = 30{\cdot}5, \qquad h \text{ (saponine)} = 20{\cdot}7.$$

Thus, although the capillary heights differ considerably, the tensions at the first moment are almost equal. In this case then, as in that of soap, there is strong evidence that the lowered tension is the result of the formation of a pellicle.

Though not immediately connected with the principal subject of this communication, it may be well here to record that I find saponine to have no effect inimical to the rebound after mutual collision of jets containing it. The same may be said of gelatine, whose solutions froth strongly. On the other hand, a very little soap or oleate usually renders such rebound impossible, but this effect appears to depend upon *undissolved* greasy matter. At least the drops from a nearly vertical fountain of *clear* solution of soap were found not to scatter (Roy. Soc. Proc., June 15, 1882). The rebound of *jets* is, however, a far more delicate test than that of *drops*. A fountain of strong saponine differs in appearance from one of water ; but this effect is due rather to the superficial viscosity, which retards, or altogether prevents, the resolution into drops.

The failure of rebound when jets or drops containing milk or undissolved soap come into collision has not been fully explained ; but it is probably connected with the disturbance which must arise when a particle of grease from the interior reaches the surface of one of the liquid masses.

P.S.—I have lately found that the high tension of recently formed surfaces of soapy water was deduced by A. Dupré (" Théorie Mécanique de la Chaleur," Paris, 1869), as long ago as 1869, from some experiments upon the vertical rise of fine jets. Although this method is less direct than that of the present paper, M. Dupré must be considered, I think, to have made out his case. It is remarkable that so interesting an observation should not have attracted more attention.

NOTES.

IT is stated that the committee to be appointed to inquire into colour-blindness in seamen, railway guards, and others, will not be exclusively confined to members of the Royal Society. Some gentlemen who, like Dr. Farquharson, M.P., and Mr. Bickerton, of Liverpool, have taken special interest in the question will, it is said, be asked to join the committee. A further question on the subject will, in the course of a few days, be put to the President of the Board of Trade.

WE regret to have to record the death of Sir John Henry Lefroy, F.R.S. He died on Friday evening last at his residence, Lewarne, a few miles from Liskeard. He was seventy-three years of age. He entered the Royal Artillery in 1834, and was Director of the Magnetical and Meteorological Observatory at St. Helena from 1840 to 1841, whence he moved to a similar position at Toronto in 1842. During the next year he made a magnetic survey of the interior of North America from Montreal to the Arctic Circle. From 1854 to 1855 he was scientific adviser to the Duke of Newcastle at the War Office on subjects of artillery and inventions, and in 1855 he was sent, as lieutenant-colonel, on a special mission to the seat of war. Afterwards he held several high military appointments. In 1882 he was made a general, and retired. He had been elected a Fellow of the Royal Society in 1848.

MR. THOMAS JOHNSON, Demonstrator in Botany at the Normal School of Science and Royal School of Mines, has been appointed to succeed the late Prof. McNab, as Professor of Botany at the Royal College of Science, Dublin. Prof. Johnson begins lecturing this term.

AN International Medical Congress was opened at Vienna on Tuesday, and will continue its sittings until to-morrow (Friday). Many physicians from the principal European countries are taking part in the proceedings.

AT the next meeting of the Anthropological Institute, on Tuesday, April 22, M. Jacques Bertillon will give a lecture, with demonstrations, on the method now practised in France of identifying criminals by comparing their measures with those of convicted persons in the prison registers. The registers contain the measures of many tens of thousands of persons, with their photographs ; yet M. Bertillon's method enables the reference to be rapidly effected. It is thought, therefore, that the authorities in England who are concerned with the police, or with the identification of deserters from the army or the navy, may be glad of the opportunity of hearing M. Bertillon's exposition.

THE Meteorological Office has adopted a new way of spreading information as to the condition of the weather on our coasts. On Monday it began to exhibit, at 63 Victoria Street, Westminster, outside the building, a series of boards, showing the state of the wind, weather, and sea at Yarmouth, Dover, the Needles, Scilly, Valentia (Ireland), and Holyhead. The information given is for 8 o'clock in the morning and 2 o'clock in the afternoon, and the notices are posted up at about 9.30 a.m. and 3 p.m. respectively. The words are printed in clear type, and can be read by those having ordinarily good sight from the pavement or roadway.

AT the meeting of the Institution of Civil Engineers on Tuesday evening, Sir Frederick Bramwell read a paper on the application of electricity to welding, stamping, and other cognate purposes.

THERE has been some talk lately about a scheme for the construction of a bridge across the Bosphorus. The Turkish newspaper *Hakikat* gives some particulars of the project *à propos* of an offer by a French syndicate to build a bridge of 800 metres in length and 70 metres high between Roumeli and Anatoli Hissar. The bridge would consist of one span, and this would exceed in length by one-half the longest span of the Forth Bridge. The Anatolian railway, it is thought, will make the construction of such a bridge a necessary and feasible undertaking before many years.

MADAME ROSA KIRSCHBAUM, who has taken the degree of Doctor of Medicine at a Swiss University, has been authorized by a special imperial decree to conduct a hospital for eye diseases at Salzburg. The Vienna Correspondent of the *Times* says this is the first case of a lady physician being admitted to medical practice in Austria.

THE new number of the *Kew Bulletin* begins with a section on canaigre, the root of which seems likely to take an important place as a tanning material. This is followed by sections on pistachio cultivation in Cyprus, Indian sugar, and mites on sugar-cane. The section on Indian sugar consists chiefly of a selection from a file of documents sent to Kew from the India Office, containing much valuable information as to the production of cane sugar in India.

AT the meeting of the Scientific Committee of the Royal Horticultural Society on April 8, Mr. Wilson exhibited a plant of a primrose, a seedling from Scott Wilson, showing a greater advance to a deep blue colour thanh as yet been made. A series of intermediate forms were also shown.

THE Prefect of Savoy has recently prohibited the gathering of the *Cyclamen* in the woods of his department. Notwithstanding its abundance in the locality, this beautiful plant had been threatened with total extinction, from the enormous numbers gathered each year for sale in the markets of Chambéry and Aix-les-Bains.

A SINGULAR fact is related by M. Lagatu in the *Feuille des Jeunes Naturalistes*. In the year 1884 a large number of cattle died after having browsed in a particular pasture in the department of l'Oise. M. E. Prillieux found the cause of death to be poisoning by ergotized *Lolium;* and he attributes it to the fact that the cattle were sent to the pasture about 10 days later than usual. M. Prillieux frequently found ergot on tufts of grass refused by the cattle, which marked the spots where dejecta had been left without being scattered.

DR. G. B. DE TONI has retired from the editorship of the Italian bi-monthly journal *Notarisia*, devoted to cryptogamic botany, which will in future be conducted by Dr. David Levi Morenos.

AT the last meeting of the Natural History Society of Kiel, Major Reinhold read a paper on the botanical condition of the German Ocean. According to researches recently made, the eastern part is almost wholly bare of vegetation. This is believed to be owing to the strong tidal currents, which so disturb the sea bottom as to prevent the germs and spores of marine plants from settling.

A ZOOLOGICAL floating station is now in working order at Isefiord on the Danish coast, under the direction of Dr. Petersen.

THE Proceedings of the International Congress of Zoology, held last August in Paris, were issued a few days ago. Among the contributors are Messrs. Bogdanow, Bowdler Sharpe, D'Arcy Thompson, E. P. Wright, C. V. Riley, V. Wagner, Ray Lankester, A. S. Packard, Trimen, Rütimeyer, Retzius, Hubrecht, de Selys-Longchamps, Agassiz, Blanford, L. Netto, W. A. Conklin, A. Fritsch, and McLachlan. This list of names suffices to show that the meeting was really of an international character.

A SHOCK of earthquake was felt in M[illegible] U.S.A., on April 1[illegible].

REPORTS of an earthquake felt on March 26, between 9.15 and 9.20 p.m., have been received from Innsbruck, the Ziller Valley, Sterzing, Bozen, Meran, the Puster Valley, Salurn, Arco, Ampezzo, and the Weiten Valley. The direction of the shocks was from north to south.

TWO papers on "The Cradle of the Semites," read before the Philadelphia Oriental Club, have just been published. The first is by Dr. Daniel G. Brinton, who contends that the Semitic stock came originally from "those picturesque valleys of the Atlas which look forth toward the Great Ocean and the setting sun." Prof. Jastrow, the author of the second paper, agrees generally as to the probability of a Semitic migration from Africa into Asia, but thinks that Dr. Brinton goes farther than the evidence warrants when he tries to indicate the particular region of Africa from which the migration started.

DURING the summer and autumn of 1888, and the following winter, Mr. Albert Koebele carried on researches in Australia for the purpose of determining whether it would not be possible to introduce into California the most efficient of the Australian natural enemies of the fluted scale (*Icerya purchasi*, Maskell). A report on his investigations has just been issued by the U.S. Department of Agriculture; and from this it seems that the results achieved by him are highly satisfactory. Prof. Riley, who contributes an introduction to the report, says that one of the insects imported, the Cardinal Vedalia (*Vedalia cardinalis*, Mulsant), has multiplied and increased to such an extent as to rid many of the orange-groves of Icerya, and to promise immunity in the near future for the entire State of California.

SOME interesting notes on the archæology and ethnology of Easter Island, by Mr. Walter Hough, appear in the new number of the *American Naturalist*. One of the last acts of the late Prof. Spencer F. Baird was to induce the American Navy Department to send a vessel to explore the island and bring back representative specimens. The U.S.S. *Mohican*, then at Tahiti, was detailed, and the fruits of the successful twelve days' exploration are now to be seen in the north and west halls of the American National Museum. They consist of several stone images, carved stones, painted slabs, and a fine collection of smaller objects obtained by Paymaster W. J. Thomson, U.S.N. In his article Mr. Hough makes good use of the materials thus brought together, and of information placed at the disposal of the National Museum by Mr. Thomson, and by Surgeon G. H. Cooke, U.S.N.

TWO interesting papers on primitive architecture, by Mr. Barr Ferree, have been reprinted together, one from the *American Naturalist*, the other from the *American Anthropologist*. In the first article the author deals with sociological influences, in the second with climatic influences.

FROM the reports, for the past official year, of the Directors of Public Instruction and their subordinates in various Indian districts, on vernacular literature, it appears that, on the whole, but very little scientific work of an original character is being performed by natives of India, and that the taste for scientific literature, original or translated, can scarcely be said to exist. In Bengal, the Director says that, "while physiology keeps in old grooves, medicine seems to be trying to return to them." In Madras scientific works appear to have been confined to the translation of an old Sanskrit work on medicine, unless indeed "a collection of a thousand stanzas in Tamil verse, treating of the Yoga philosophy, can be called scientific." In the North-West Provinces eleven works on medicine were registered during the year, some of them being translations, while others are described as original works of some merit. The great mass of Indian literature appears to be composed of fiction, poetry, and the drama, and, in Bengal especially, is described as for the most part worthless and immoral.

It is well known that a connection has been observed (in Munich and other towns) between ground-water and typhus; the disease gaining force as the water goes down, and declining as the water rises. (It is thought that certain decompositions are favoured by air taking the place of water in the ground.) While in former years Hamburg has exemplified this effect, the last typhus epidemic there, according to Prof. Brückner, was quite in discordance with the variations of ground-water. From 1838, it is stated, the typhus mortality in Hamburg steadily fell from 19 to 2 or 3 per 1000; but from 1885 it rose again to 9; and whereas before 1885 the epidemic was a summer one, with its maximum in August, it now became a winter one, with maximum in December. The curve of ground-water continued to have the same course as before. Prof. Brückner points out that this epidemic of 1884–87 corresponded in time with certain harbour works being carried out at Hamburg, and he attributes it to the upturning of enormous masses of earth, the abode of numberless bacteria, whose diffusion among the inhabitants was thus facilitated.

The volume of Results of the Magnetical and Meteorological Observations made at the Royal Observatory, Greenwich, in the year 1887, contains an appendix of considerable importance to meteorologists, viz. the hourly reduction of the photographic records of the barometer for 1874–76, and of the dry and wet bulb thermometers for 1869–76. This appendix, which is also published separately, continues the results for the twenty years published in 1878. The tables now given complete the reduction of the photographic records nearly to the present time, commencing with the year 1854 for the barometer, and with the year 1849 for the thermometers. The means for the two periods are given separately, but their value would be further enhanced if the results for the whole period were also given in a combined form.

With the month of January, the Monthly Weather Review of the United States Signal Service entered upon its eighteenth year of publication. The Review is based upon reports from 1934 observers, a large majority of whom belong to the State Weather Services. This number is exclusive of the reports which are usually supplied by the Central Pacific Railway Company, but which could not be forwarded for January, owing to snow blockades and floods. One hundred and twenty miles of the railroad crossing the Sierra Nevada range of mountains was blockaded by snow, being the heaviest blockade ever known there, and it is estimated that fully 50 per cent. of the live stock was lost from exposure and starvation. The paths of twelve depressions that appeared over the North Atlantic Ocean are plotted on a chart. Of the nine depressions that moved eastwards from the American continent, four were traced to the British Isles. Three storms first appeared over the ocean, and two of these were also traced to the British Isles. Among the "Notes and Extracts" is an article on the recent comparison of anemometers, by Prof. Marvin. The results obtained show that of the anemometers exposed to the same wind, those with short arms gave a lower velocity than those with long arms. No experiments were made beyond 32 miles per hour, and although various formulæ were given for the reduction of wind velocities, Prof. Marvin states that they cannot be depended on for velocities beyond the experimental values, so that much more information has yet to be gained, as to the action of anemometers with high velocities, from careful experiments with whirling machines. We take this opportunity of pointing out that a general subject-index to the Monthly Weather Reviews and the Annual Reports of the Chief Signal Officer, to 1887, has been published, and affords easy reference to the valuable information contained in these publications.

A recent writer in the *North China Herald* of Shanghai says that the climate of Asia is becoming colder than it formerly was, and its tropical animals and plants are retreating southwards at a slow rate. This is true of China, and it is also the case in Western Asia. The elephant in a wild state was hunted in the eighth century B.C. by Tiglath Pileser, the King of Assyria, near Carchemish, which lay near the Euphrates in Syria. Four or five centuries before this Thothmes III., King of Egypt, hunted the same animal near Aleppo. In high antiquity the elephant and rhinoceros were known to the Chinese, they had names for them, and their tusks and horns were valued. South China has a very warm climate which melts insensibly into that of Cochin-China, so that the animals of the Indo-Chinese peninsula would, if there were a secular cooling of climate, retreat gradually to the south. This is just what seems to have taken place. In the time of Confucius elephants were in use for the army on the Yangtze River. A hundred and fifty years after this, Mencius speaks of the tiger, the leopard, the rhinoceros, and the elephant, as having been, in many parts of the empire, driven away from the neighbourhood of the Chinese inhabitants by the founders of the Chou dynasty. Tigers and leopards are not yet by any means extinct in China. The elephant and rhinoceros are again spoken of in the first century of our era. If to these particulars regarding elephants be added the retreat from the rivers of South China of the ferocious alligators that formerly infested them, the change in the fauna of China certainly seems to show that the climate is much less favourable for tropical animals than it formerly was. In fact it appears to have become drier and colder. The water buffalo still lives, and is an extremely useful domestic animal, all along the Yangtze and south of it, but is not seen north of the old Yellow River in the province of Kiangsu. The Chinese alligator is still found in the Yangtze, but so rare is its appearance that foreign residents in China knew nothing about it till it was described by M. Fauvel. The flora is also affected by the increasing coldness of the climate in China. The bamboo is still grown in Peking with the aid of good shelter, moisture, and favourable soil, but it is not found naturally growing into forest in North China, as was its habit two thousand years ago. It grows now in that part of the empire as a sort of garden plant only. It is in Szechuan province that the southern flora reaches farthest to the northward.

Some interesting experiments on the physiology of sponges have been recently made by Dr. Lendenfeld, of Innsbruck (*Humboldt*). He operated with eighteen different species, putting carmine, starch, or milk, in the water of the aquarium, and also trying the effect of various poisons—morphine, strychnine, &c. The following are some of his results: Absorption of food does not take place at the outer surface, but in the interior; only foreign substances used for building up the skeleton enter the sponge without passing into the canal-system. Grains of carmine and other matters often adhere to the flat cells of the canals, but true absorption only takes place in the ciliated cylindrical cells of the ciliated chamber. These get quite filled with carmine grains or milk spherules, but starch grains prove too large for them. Remaining in these cells a few days, the carmine cells are then ejected; while milk particles are partly digested, and then passed on to the migratory cells of the intermediate layer. Any carmine particles found in these latter cells have entered accidentally through external lesions. The sponge contracts its pores when poisons are put in the water; and the action is very like that of poisons on muscles of the higher animals. Especially remarkable is the cramp of sponges under strychnine; and the lethargy (to other stimuli) of sponges treated with cocain. As these poisons, in the higher animals, act indirectly on the muscles through the nerves, it seems not without warrant to suppose that sponges also have nerve-cells which cause muscular contraction.

THE additions to the Zoological Society's Gardens during the past week include a Black-eared Marmoset (*Hapale penicillata*) from South-east Brazil, presented by Mr. J. A. Watson, F.Z.S; a Lesser White-nosed Monkey (*Cercopithecus petaurista* ♀) from West Africa, presented by Mr. E. B. Parfitt; a Macaque Monkey (*Macacus cynomolgus* ♀) from India, presented by Mrs. H. F. Batt; a Sambur Deer (*Cervus aristotelis* ♂) from India, presented by Capt. George James; a Common Badger (*Meles taxus*, white variety), British, presented by the Hon. Morton North; a Jackdaw (*Corvus monedula*), British, presented by Mrs. Bowden; a Blessbok (*Alcelaphus albifrons* ♂) from South Africa, four Undulated Grass Parrakeets (*Melopsittacus undulatus* 2 ♂ 2 ♀) from Australia, deposited; an Australian Crane (*Grus australasiana*), two Chestnut-eared Finches (*Amadina castanotis*) from Australia, three European Flamingoes (*Phœnicopterus antiquorum*), four Great Bustards (*Otis tarda*), European, purchased.

OUR ASTRONOMICAL COLUMN.

OBJECTS FOR THE SPECTROSCOPE.

Sidereal Time at Greenwich at 10 p.m. on April 17 = 11h. 43m. 55s.

Name.	Mag.	Colour.	R.A. 1890.	Decl. 1890.
			h. m. s.	° ′
(1) G.C. 2841	—	White.	12 13 33	+47 55
(2) 137 Schj.	6	Yellowish-red.	10 54 5	−15 52
(3) φ Leonis...	4	Yellowish-white.	11 11 6	− 3 3
(4) β Leonis	2	White.	11 43 30	+15 11
(5) 155*b* Schj.	7	Red.	12 52 6	+66 35
(6) U Virginis	Var.	Reddish.	12 45 31	− 6 9

Remarks.

(1) This large white nebula is situated in the constellation of Ursa Major, and is thus described in the General Catalogue:—"Very bright, very large, suddenly brighter in the middle to a nucleus." According to Smyth, it is oval in shape, the lateral edges being better defined than the ends. Lord Rosse's telescope showed it to be much mottled. In 1866 Dr. Huggins described its spectrum as continuous, with "a suspicion of unusual brightness about the middle part." No observations of the spectrum appear to have been made since then, but it is important that it should be re-examined. The spectra of the white nebulæ are usually almost entirely wanting in red light, and it is therefore quite possible that the brightening in the middle is nothing more than the green carbon fluting near λ517. Direct comparisons with the spectrum of a spirit-lamp flame would soon decide this point. In any case, if there be one or more brightenings, some attempt should be made to determine their positions.

(2) The spectrum of this star has not yet been completely described. Secchi stated that it was of the type of α Orionis, and Dunér states that it is most probably a star of Group II., but very feebly developed. As I have previously pointed out, it is these "feebly developed" stars of Group II. which require further examination rather than those which are described as "fully developed," as they are probably transition stages between Groups I. and II., or Groups II. and III.

(3) According to Konkoly, this star has a well-developed spectrum of the solar type. Differential observations as to whether the star belongs to Group III. or to Group V. are required. (For criteria so far determined, see p. 20.)

(4) The spectrum of this star is a very fine one of Group IV. The usual observations are required.

(5) D'Arrest and Dunér both describe the spectrum of this star as a magnificent one of Group VI. According to Dunér, the principal bands are very dark, and the subsidiary bands 4 and 5 are well visible, while the bands 1, 2, 3 are very weak. He also states that the spectrum is rendered unique by the fact that the least refrangible part of the sub-zone in the yellow is considerably weaker than the other. Further observations, as previously suggested for similar stars, should be made.

(6) This star affords another opportunity of searching for bright lines in the spectrum of a variable of Group II. near maximum. Vogel states that the spectrum is a fine one of Group II., but we have as yet no detailed description of the bands present. The period of the variable is about 207 days, and it ranges in magnitude from 7·7–8·1 at maximum to 12·2–12·8 at minimum. The maximum will occur on April 21, but as Mr. Espin has noticed that the bright lines sometimes do not appear until after the maximum, it will be desirable to continue the observations for some days after. The variations of the bright carbon flutings should also receive attention.

A. FOWLER.

COMET BROOKS (*a* 1890).—The following elements have been computed by Dr. Bidschof, of the Imperial Observatory, Vienna, from observations at Cambridge, U.S., March 21; Vienna, March 4 and 28 (*Astr. Nach.*, No. 2962):—

T = 1890 June 3·6399 Berlin mean time.

$$\left.\begin{array}{rl} \omega = & 71^{\circ}\ \ 7'\cdot5 \\ \Omega = & 320\ \ 44\cdot9 \\ = & 121\ \ 17\cdot2 \end{array}\right\}\text{Mean Eq. 1890·0.}$$

$$\log q = 0\cdot27189$$

Ephemeris for Berlin Midnight.

1890.	R.A.	Decl.	1890.	R.A.	Decl.
	h. m. s.	° ′		h. m. s.	° ′
April 16...	21 9 21...	+19 21·0	April 26...	21 4 5...	+26 15·1
17...	9 0...	19 59·2	27...	3 18...	27 0·9
18...	8 37...	20 38·0	28...	2 27...	27 47·6
19...	8 13...	21 17·5	29...	1 33...	28 35·0
20 ..	7 47...	21 57·7	30...	0 34...	29 33·3
21...	7 18...	22 38·6	May 1...	20 59 31...	30 12·4
22...	6 46...	23 20·3	2...	58 23...	31 2·3
23...	6 10...	24 2·8	3...	57 10...	31 52·9
24...	5 32...	24 46·1	4...	55 51...	32 44·3
25...	4 50...	25 30·2			

Brightness, that at discovery being unity—

18 April = 1·81.
22 ,, = 1·99.
26 ,, = 2·18.
30 April = 2·39.
4 May = 2·62.

NEW VARIABLE IN CÆLUM.—Prof. Pickering, in a communication to *Astr. Nach.*, No. 2962, notes that an examination of a plate taken by Mr. S. J. Bailey at the Closica station in Peru, shows that the G and *h* lines of hydrogen are bright in the spectrum of a star whose position for 1875 is R.A. 4h. 36·2m., Decl. − 38° 29′. An inspection of photographic chart plates indicates that the star is variable, and its spectrum seems to place it in the same class as *o* Ceti, R Hydrae, R Leonis, and other long-period variables. The date on which the plate was taken is not given, but it is observed that the spectrum is as bright photographically as that of Cordoba Catalogue No. 1077, which is of the magnitude 7½, and since the former is a red star, it was probably much brighter visually. Eye observations at Cambridge, U.S., on February 20 and 21 of this year show that the star was then about magnitude 10·5. It seems, therefore, that the bright lines of hydrogen were photographed in the spectrum of this object when it was near a maximum.

GEOGRAPHICAL NOTES.

THE Council of the Royal Geographical Society met on Monday, and finally decided upon the awards of the honours for the year. One of the Royal Medals has been awarded to Emin Pasha, in recognition of the services rendered by him to geography and the allied sciences by his explorations and researches in the countries east, west, and south of the Upper Nile during his administration of the Equatorial Province of Egypt. The other Royal Medal has been awarded to Lieut. F. E. Younghusband, for his journey across Central Asia in 1886–87, from Manchuria and Pekin *viâ* Hami and Kashgar, and over the Mushtagh to Cashmere and India, a distance of 7000 miles. The Cuthbert Peek grant has been awarded to Mr. E. C. Hare for his observations on the physical geography of Tanganyika made during his many years' residence on that lake. The Murchison grant has been awarded to Signor Vittoria Sella, in consideration of his recent journey in the Caucasus, and the advance made in our knowledge of the physical characteristics and the topography of the chain by means of his series of panoramic photographs taken above the snow level. The Gill